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27 January 2021

Mr. Rombel Arquines
Remedial Project Manager
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Reference: 0042525

Subject: North Penn Area 2 Superfund Site
Progress Report for January 2020 - December 2020

Dear Mr. Arquines,

On behalf of AMETEK, Inc. (AMETEK) and Penn Color, Inc. (Settling Defendants), Environmental Resources Management, Inc. (ERM) hereby submits this progress report pursuant to Section X of the Consent Decree (Consent Decree) executed between the Settling Defendants and the United States of America and entered on 10 February 2011. This progress report covers the above-referenced period.

SUMMARY OF ACTIVITIES PERFORMED IN REFERENCED PERIOD

1. Recovery wells PW-3 and MW-2 were operated to recover volatile organic compound (VOC)-impacted groundwater. See the Summary of Data section below.

2. The Settling Defendants continued wetland and surface soil operation and maintenance (O&M) activities, including the following:
    a. ERM inspected the wetland and surface soil area restorations (plantings and seeded areas). These areas were found to be functioning consistent with the Remedial Action design.

3. The Settling Defendants continued groundwater O&M activities, including the following:
    a. ERM conducted a Site-wide groundwater elevation survey (39 wells) on 11 May 2020 and 23 November 2020.
    b. ERM collected surface water samples and surface water elevation measurements from four locations on 11 May 2020 and 3 December 2020.
    c. ERM performed the annual groundwater sampling on Groups 1 and 2 wells (25 wells). Sampling began on 11 May 2020 and was completed on 20 May 2020.
    d. ERM replaced the PW-3 pump wet end and riser pipe on 3 June 2020.
    e. The Programmable Logic Controller (PLC) touch screen was replaced on 3 June 2020.
    f. ERM performed the semiannual groundwater sampling on Group 1 wells (7 wells). Passive diffusion bags were installed on 6 November 2020 and sampling was conducted on 23 November 2020.
    g. ERM installed four new surface water elevation measuring points into the stream on site.
    h. ERM constructed two new flush-mount monitoring well pads at wells MW-2I and MW-2D, which were previously buried due to site construction activities.

4. The Settling Defendants continued the operation of the sub-slab depressurization (SSD) system at Building 1.
    a. ERM collected 12 indoor air samples, three outdoor air samples, and seven sub-surface air samples from Building 1 on 21 and 22 March 2020.
    b. ERM replaced the carbon in the lead carbon tank on 24 April 2020. The lead/lag configuration of the vessels was switched during this event.
    c. ERM repaired an issue related to the programming of the high-level moisture separator alarm on 23 November 2020.
    d. ERM replaced the blower belts and replaced the differential pressure measurement lines within the extraction well vaults on 24 November 2020.
    e. On 23 December 2020, ERM conducted a change-out of carbon in the lead carbon vessel. The lead/lag configuration of the vessels was switched during this event.

SUMMARY OF DATA RECEIVED OR GENERATED IN REFERENCED PERIOD

1. Table 1a contains the groundwater sample analytical data for the annual groundwater sampling event conducted between 11 May 2020 and 20 May 2020. Results of this sampling event remain consistent with recent historical results. Group 1 wells, other than the recovery wells, continue to be below the remediation goals, which indicates that the groundwater capture system continues to be effective. The arsenic concentration of 16.8 µg/L in perimeter well MW-13D exceeded the arsenic cleanup standard. It should be noted that arsenic concentrations at MW-13D have been detected above the cleanup goal of 10 µg/L since prior to remedy implementation. However, following the remedy construction, the concentration has reduced from 20 µg/L to 16.8 µg/L suggesting that the remediation could be having a positive effect on this condition. This is consistent with historical sampling results since implementation of the remedy.

2. Table 1b contains the groundwater sample analytical data for the semiannual groundwater sampling event conducted between 23 November 2020 and 3 December 2020. Results of this sampling event remain consistent with recent historical results. Group 1 wells, other than the recovery wells, continue to be below the remediation goals, which indicates that the groundwater capture system continues to be effective. Concentrations of VOCs in MW-2S were two orders of magnitude lower than they were in May 2020, and PW-3 results were consistent with the results from the May 2020 event.

3. Tables 2a and 2b contain the surface water sample analytical data for the surface water events conducted on 11 May 2020 and 3 December 2020, respectively. All the surface water sample results were below the cleanup levels (Surface Water Criteria), which indicates the wetlands remediation work has been effective.

4. Tables 3 through 5 summarize the 2020 performance data for recovery wells PW-3 and MW-2. The most recent estimate of the amount of VOCs remaining in the bedrock groundwater continues to trend downward and is depicted on Figure A.

5. Tables 6a and 6b contain the groundwater level and surface water level monitoring data collected on 11 May, 23 November, and 3 December 2020.

6. Pumping rate and static water level monitoring data were evaluated to assure maintenance of hydraulic control over the contaminant plume. Figures 1a, 2a, and 3a are potentiometric surface maps for respectively the shallow, intermediate, and deep wells and are based on the 11 May 2020 groundwater level monitoring. Figures 1b, 2b, and 3b are based on the 23

November 2020 groundwater level monitoring event. The figures indicate groundwater drawdown and capture is apparent.

7. The data from the 21 and 22 March 2020 indoor air and sub-slab air sampling event was provided to the USEPA in a Technical Memorandum in May 2020.

8. Data regarding SSD system operation and performance are provided in Tables 7, 8, 9, and 10, respectively for System Uptime, Estimated VOC Mass Removal, Vapor-Phase Carbon Readings, and Induced Vacuum. The data indicate a reduction in the PID readings for sub-slab vapor collected by the system, and indicate the system continues to generate a sufficient induced vacuum below the building slab in the target area.

SUMMARY OF DELIVERABLES SUBMITTED IN REFERENCED PERIOD

1. ERM submitted to the USEPA on 23 January 2020 the sampling results for Perfluoroalkyl Substances. Data associated with this submittal were collected in November 2019, and were included in the Progress Report for July – December 2019.

2. ERM submitted to the USEPA the progress report for the second half of 2019 on 20 February 2020.

3. ERM submitted to the USEPA the Technical Memorandum for the March 2020 indoor air, outdoor air, and sub-slab air sampling event on 6 May 2020.

ANTICIPATED ACTIVITIES FOR THE NEXT PERIOD

1. The Settling Defendants will continue groundwater RA activities, including the following:
    a. PW-3 and MW-2 pump maintenance and/or replacement will be performed as necessary.
    b. PW-3 and MW-2 operations and pumping rates will be monitored.
    c. Annual groundwater sampling of Group 1 and 2 wells (25 wells), site-wide water level gauging (42 wells), and stream gauging and sampling (4 locations) is anticipated for spring 2021.

2. The Settling Defendants will continue operation and maintenance of the SSD system at Building 1.

SCHEDULE PERCENT COMPLETION AND DELAYS

1. Not applicable at this time.

MODIFICATIONS TO PLANS OR SCHEDULES

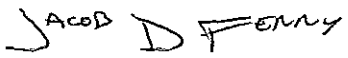
1. There are no modifications to the work plans or schedules at this time.

COMMUNITY RELATIONS

1. Not applicable at this time.

Please review this information and, if you have any questions, please call me at 484-913-0360 or Mike Eversman at 484-913-0359..

Yours sincerely,



Jake Ferry, P.E.
Project Manager

Enclosures: Tables 1a through 10
Figures A and 1a through 3b

cc: D. Armstrong, PADEP
T. Deeney, AMETEK
M. Berg, Madelaine R. Berg, Esq. LLC
W. Ponticello, Penn E&R
M. Eversman, ERM

Table 1a
Groundwater Sampling Results - May 2020
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

		CLIENT ID:	MW-2S			MW-2I			DUP-01-052020**			MW-2D			MW-3A			MW-3B			MW-3C			DUP-01-051920**			MW-3D		
		LAB ID:	1316519			1319066			1319067			1319068			1319060			1319061			1319062			1319063			1319064		
		COLLECTION DATE	5/11/2020			5/20/2020			5/20/2020			5/20/2020			5/19/2020			5/19/2020			5/19/2020			5/19/2020			5/19/2020		
		SAMPLE MATRIX:	Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater		
		SAMPLE UNITS:	µg/L			µg/L			µg/L			µg/L			µg/L			µg/L			µg/L			µg/L			µg/L		
Analyte	Cleanup Standard* (µg/L)		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Volatile Organic Compounds																													
Carbon Tetrachloride	5		ND		2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2
1,2-Dichloroethane	5		ND		20	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2
1,1- Dichloroethene	7		**2,500**		2	**250**		0.2	**270**		0.2	**7**		0.2	**0.4**	J	0.2	**66**		0.2	**88**		0.2	**80**		0.2	**120**		0.2
cis-1,2-Dichloroethene	70		**100**		2	**270**		0.2	**300**		0.2	**0.4**	J	0.2	**3**		0.2	**15**		0.2	**25**		0.2	**23**		0.2	**7**		0.2
Tetrachloroethene	5		**180**		2	ND		0.2	ND		0.2	**0.3**	J	0.2	**31**		0.2	**6**		0.2	**3**		0.2	**3**		0.2	**4**		0.2
Trichloroethene	5		**9,200**		20	**330**		2	**340**		2	**14**		0.2	**5**		0.2	**290**		0.2	**200**		0.2	**180**		0.2	**300**		2
Vinyl Chloride	2		ND		4	**1**		0.4	**1**		0.4	ND		0.4	ND		0.4	ND		0.4	**3**		0.4	**3**		0.4	**0.6**	J	0.4
Semivolatile Organic Compounds																													
1,4-Dioxane	6.1		**250**		12	**12**		2	**11**		2	ND		2	ND		2	**7**		2	**8**		2	**5**		2	**12**		2
Dissolved Metals																													
Antimony	6		ND		0.41	ND		0.41	**0.41**	J	0.41	ND		0.41	ND		0.41	ND		0.41	ND		0.41	**1.6**		0.41	ND		0.41
Arsenic	10		**1.7**	J	0.68	**5.8**		0.68	**5.8**		0.68	**10.4**		0.68	**0.77**	J	0.68	**1.7**	J	0.68	**4.0**		0.68	**4.2**		0.68	**11.9**		0.68
Manganese	217		**431**		3	**39.6**		3	**41.4**		3	**44.8**		3	**13.8**		3	ND		3	**27.1**		3	**26.0**		3	**43.2**		3
Thallium	0.5		ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13

		CLIENT ID:	MW-5S			MW-5I			MW-5D			MW-5XD			MW-6S			MW-7S			MW-13D			MW-14I			PCGW-2		
		LAB ID:	1316531			1316532			1319057			1316533			1319056			1319055			1316526			1316520			1316529		
		COLLECTION DATE	5/14/2020			5/14/2020			5/18/2020			5/14/2020			5/18/2020			5/18/2020			5/13/2020			5/12/2020			5/13/2020		
		SAMPLE MATRIX:	Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater		
		SAMPLE UNITS:	µg/L			µg/L			µg/L			µg/L			µg/L			µg/L			µg/L			µg/L			µg/L		
Analyte	Cleanup Standard* (µg/L)		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Volatile Organic Compounds																													
Carbon Tetrachloride	5		ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2
1,2-Dichloroethane	5		ND		2	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2
1,1- Dichloroethene	7		ND		0.2	**55**		0.2	**30**		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2
cis-1,2-Dichloroethene	70		**7**		0.2	**7**		0.2	**5**		0.2	ND		0.2	**0.7**	J	0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2
Tetrachloroethene	5		**6**		0.2	**8**		0.2	**3**		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2
Trichloroethene	5		**37**		0.2	**120**		0.2	**110**		0.2	ND		0.2	**4**		0.2	**1**		0.2	ND		0.2	ND		0.2	ND		0.2
Vinyl Chloride	2		ND		0.4	ND		0.4	ND		0.4	ND		0.4	ND		0.4	ND		0.4	ND		0.4	ND		0.4	ND		0.4
Semivolatile Organic Compounds																													
1,4-Dioxane	6.1		ND		2	**7**		2	**4**	J	2	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2
Dissolved Metals																													
Antimony	6		ND		0.41	ND		0.41	ND		0.41	ND		0.41	ND		0.41	ND		0.41	ND		0.41	ND		0.41	ND		0.41
Arsenic	10		**20.4**		0.68	**10.5**		0.68	**17.4**		0.68	ND	K4	0.68	**1.2**	J	0.68	**0.71**	J	0.68	**16.8**		0.68	**4.6**		0.68	**11.4**		0.68
Manganese	217		**317**		3	**198**		3	**15.7**		3	**27.1**		3	**63.3**		3	ND		3	**18.4**		3	**11.4**		3	**122**		3
Thallium	0.5		ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13

Notes:
* Cleanup Standard as listed in Record of Decision.
** DUP-01-052020 collected at MW-2I
DUP-01-051920 collected at MW-3C
MDL: Medium Detection Limit
Q: Lab Qualifier
J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.
Q1: :Lab Control Sample/Lab Control Sample Duplicate High
Bolded values indicate results greater than MDL.
Highlighted values indicate results exceed the cleanup standard.
ND: Non Detect

Table 1a
Groundwater Sampling Results - May 2020
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

		CLIENT ID:	MW-9I			MW-11A			MW-11B			MW-11C			MW-13S			MW-13I		
		LAB ID:	1316521			1316522			1316523			1316524			1316527			1316528		
		COLLECTION DATE	5/12/2020			5/12/2020			5/12/2020			5/12/2020			5/13/2020			5/13/2020		
		SAMPLE MATRIX:	Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater		
		SAMPLE UNITS:	µg/L			µg/L			µg/L			µg/L			µg/L			µg/L		
Analyte	Cleanup Standard* (µg/L)		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Volatile Organic Compounds																				
Carbon Tetrachloride	5		ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2
1,2-Dichloroethane	5		ND		2	ND		2	ND		2	ND		2	ND		2	ND		2
1,1- Dichloroethene	7		ND		0.2	ND		0.2	**0.3**	J	0.2	ND		0.2	ND		0.2	ND		0.2
cis-1,2-Dichloroethene	70		ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2
Tetrachloroethene	5		ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2	ND		0.2
Trichloroethene	5		ND		0.2	ND		0.2	**0.7**	J	0.2	ND		0.2	ND		0.2	ND		0.2
Vinyl Chloride	2		ND		0.4	ND		0.4	ND		0.4	ND		0.4	ND		0.4	ND		0.4
Semivolatile Organic Compounds																				
1,4-Dioxane	6.1		ND		2	ND		2	ND		2	ND		2	ND		2	ND		2
Dissolved Metals																				
Antimony	6		ND		0.41	ND		0.41	ND		0.41	ND		0.41	ND		0.41	ND		0.41
Arsenic	10		**4.0**		0.68	**0.87**	J	0.68	**0.95**	J	0.68	**3.2**		0.68	**8.6**		0.68	**5.0**		0.68
Manganese	217		ND		3	ND		3	ND		3	ND		3	**12.7**		3	**39.5**		3
Thallium	0.5		ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13	ND		0.13

		CLIENT ID:	PW-3		
		LAB ID:	1316518		
		COLLECTION DATE	5/11/2020		
		SAMPLE MATRIX:	Groundwater		
		SAMPLE UNITS:	µg/L		
Analyte	Cleanup Standard* (µg/L)		Result	Q	MDL
Volatile Organic Compounds					
Carbon Tetrachloride	5		ND		0.2
1,2-Dichloroethane	5		ND		2
1,1- Dichloroethene	7		**230**		0.2
cis-1,2-Dichloroethene	70		**11**		0.2
Tetrachloroethene	5		**45**		0.2
Trichloroethene	5		**700**		2
Vinyl Chloride	2		ND		0.4
Semivolatile Organic Compounds					
1,4-Dioxane	6.1		**28**		2
Dissolved Metals					
Antimony	6		ND		0.41
Arsenic	10		**9.1**		0.68
Manganese	217		**94.5**		3
Thallium	0.5		ND		0.13

Notes:
* Cleanup Standard as listed in Record of Decision.
** DUP-01-052020 collected at MW-2I
DUP-01-051920 collected at MW-3C
MDL: Medium Detection Limit
Q: Lab Qualifier
J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.
Q1: :Lab Control Sample/Lab Control Sample Duplicate High
Bolded values indicate results greater than MDL.
Highlighted values indicate results exceed the cleanup standard.
ND: Non Detect

Table 1b
Groundwater Sampling Results - November/December 2020
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

CLIENT ID:		MW-2S[1]			MW-9I			MW-13S			MW-13I		
LAB ID:		410-22714-6			410-21840-3			410-21840-5			410-21840-4		
COLLECTION DATE:		12/3/2020			11/23/2020			11/23/2020			11/23/2020		
SAMPLE MATRIX:		Groundwater			Groundwater			Groundwater			Groundwater		
SAMPLE UNITS:		µg/L			µg/L			µg/L			µg/L		
Analyte	Cleanup Standard* (µg/L)	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Volatile Organic Compounds													
Carbon Tetrachloride	5	ND		0.2	ND		0.2	ND		0.2	ND		0.2
1,2-Dichloroethane	5	ND		0.3	ND		0.3	ND		0.3	ND		0.3
1,1- Dichloroethene	7	**50**		0.2	ND		0.2	ND		0.2	ND		0.2
cis-1,2-Dichloroethene	70	**1.7**		0.2	ND		0.2	ND		0.2	ND		0.2
Tetrachloroethene	5	**6.7**		0.2	ND		0.2	ND		0.2	ND		0.2
Trichloroethene	5	**170**		0.2	ND		0.2	ND		0.2	ND		0.2
Vinyl Chloride	2	ND		0.2	ND		0.2	ND		0.2	ND		0.2

CLIENT ID:		MW-13D			MW-14I			PW-3[1]		
LAB ID:		410-21840-6			410-21840-2			410-22714-7		
COLLECTION DATE:		11/23/2020			11/23/2020			12/3/2020		
SAMPLE MATRIX:		Groundwater			Groundwater			Groundwater		
SAMPLE UNITS:		µg/L			µg/L			µg/L		
Analyte	Cleanup Standard* (µg/L)	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Volatile Organic Compounds										
Carbon Tetrachloride	5	ND		0.2	ND		0.2	ND		0.2
1,2-Dichloroethane	5	ND		0.3	ND		0.3	ND		2
1,1- Dichloroethene	7	ND		0.2	ND		0.2	**170**		0.2
cis-1,2-Dichloroethene	70	ND		0.2	ND		0.2	**9.8**		0.2
Tetrachloroethene	5	ND		0.2	ND		0.2	**40**		0.2
Trichloroethene	5	ND		0.2	ND		0.2	**550**		0.2
Vinyl Chloride	2	ND		0.2	ND		0.2	ND		0.4

Notes:
* Cleanup Standard as listed in Record of Decision.
[1] Sample collected at a later date due to system not operating during semi-annual event.
MDL: Method Detection Limit
Q: Lab Qualifier
Bolded values indicate results greater than MDL.
Highlighted values indicate results exceed the cleanup standard.
ND: Non Detect
NS: Not Sampled

Table 2a
Surface Water Sampling Results - May 2020
North Penn Area 2 Superfund Site
Hatfield Township, PA

CLIENT ID:		SMP-0			SMP-1			SMP-2			SMP-3		
LAB ID:		1312689, 1312690			1312687, 1312688			1312685, 1312686			1312683, 1312684		
COLLECTION DATE:		5/11/2020			5/11/2020			5/11/2020			5/11/2020		
SAMPLE MATRIX:		Surface Water			Surface Water			Surface Water			Surface Water		
SAMPLE UNITS:		µg/L			µg/L			µg/L			µg/L		
Analyte	Surface Water Criteria* (µg/L)	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Volatile Organic Compounds													
Carbon Tetrachloride	0.23	ND		0.06	ND		0.06	ND		0.06	ND		0.06
1,2-Dichloroethane	0.38	ND		0.05	ND		0.05	ND		0.05	ND		0.05
1,1-Dichloroethene	33	ND		0.05	ND		0.05	**0.05**	**J**	0.05	ND		0.05
Tetrachloroethene	0.69	ND		0.05	ND		0.05	ND		0.05	ND		0.05
Trichloroethene	2.5	ND		0.05	ND		0.05	**0.09**	**J**	0.05	**0.1**	**J**	0.05
Vinyl Chloride	0.025	ND		0.008	ND		0.008	ND		0.008	ND		0.008
Dissolved Metals													
Chromium	NA**	ND		1.6	ND		1.6	ND		1.6	ND		1.6
Trivalent Chromium waters	101	ND		10	ND		10	ND		10	ND		10
Hexavalent Chromium	**	ND		10	ND		10	ND		10	ND		10
Zinc	163	ND		3.7	ND		3.7	ND		3.7	**4.1**	**J**	3.7
Cadmium	0.32	ND		0.15	ND		0.15	ND		0.15	ND		0.15
Lead	3.79	ND		0.071	**0.073**	**J**	0.071	**0.086**	**J**	0.071	**0.09**	**J**	0.071
Total Metals													
Antimony	5.6	ND		0.41	ND		0.41	ND		0.41	ND		0.41
Arsenic	10	ND		0.68	ND		0.68	ND		0.68	ND		0.68
Thallium	0.24	ND		0.13	ND		0.13	ND		0.13	ND		0.13

Notes:
* Criteria are the lower value of the Fish and Aquatic Life Continuous Criteria and the Human Health Criteria. See Table 1 in Remedial Action Sampling and Analysis Plan.
** Chromium III = Total Chromium - Hexavalent Chromium. Calculation performed by the laboratory.
Only Chromium III is needed for the site requirements
MDL: Method Detection Limit
Q: Lab Qualifier
J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.
Bold values indicate results greater than MDL.
Highlighted values indicate results exceed the cleanup standard.
ND: Not Detected
NS: Not Sampled

Table 2b
Surface Water Sampling Results - December 2020
North Penn Area 2 Superfund Site
Hatfield Township, PA

	CLIENT ID:	SMP-0			SMP-1			SMP-2			SMP-03		
	LAB ID:	410-22714-5			410-22714-4			410-22714-3			410-22714-2		
	COLLECTION DATE:	12/3/2020			12/3/2020			12/3/2020			12/3/2020		
	SAMPLE MATRIX:	Surface Water			Surface Water			Surface Water			Surface Water		
	SAMPLE UNITS:	µg/L			µg/L			µg/L			µg/L		
Analyte	Surface Water Criteria* (µg/L)	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Volatile Organic Compounds													
Carbon Tetrachloride	0.23	ND		0.07	ND		0.07	ND		0.07	ND		0.07
1,2-Dichloroethane	0.38	ND		0.05	ND		0.05	ND		0.05	ND		0.05
1,1-Dichloroethene	33	ND		0.06	ND		0.06	ND		0.06	ND		0.06
Tetrachloroethene	0.69	ND		0.06	ND		0.06	ND		0.06	ND		0.06
Trichloroethene	2.5	ND		0.06	ND		0.06	**0.073**	**J**	0.06	**0.091**	**J**	0.06
Vinyl Chloride	0.025	ND		0.008	ND		0.008	ND		0.008	ND		0.008
Dissolved Metals													
Chromium	NA**	ND		1.6	ND		1.6	ND		1.6	ND		1.6
Trivalent Chromium waters	101	ND		10	ND		10	ND		10	ND		10
Hexavalent Chromium	**	ND		10	ND		10	ND		10	ND		10
Zinc	163	ND		3.8	ND		3.8	ND		3.8	ND		3.8
Cadmium	0.32	ND		0.16	ND		0.16	ND		0.16	ND		0.16
Lead	3.79	ND		0.073	**0.073**	**J**	0.073	**0.078**	**J**	0.073	**0.09**	**J**	0.073
Total Metals													
Antimony	5.6	ND		0.41	ND		0.41	ND		0.41	ND		0.41
Arsenic	10	ND		0.68	ND		0.68	ND		0.68	ND		0.68
Thallium	0.24	ND		0.13	ND		0.13	ND		0.13	ND		0.13

Notes:

* Criteria are the lower value of the Fish and Aquatic Life Continuous Criteria and the Human Health Criteria. See Table 1 in Remedial Action Sampling and Analysis Plan.

** Chromium III = Total Chromium - Hexavalent Chromium. Calculation performed by the laboratory.

Only Chromium III is needed for the site requirements

MDL: Method Detection Limit

Q: Lab Qualifier

J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.

Bold values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup standard.

ND: Not Detected

NS: Not Sampled

Table 3
Performance Data for PW-1 and PW-3 Operation
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania
Updated 01 July 2020

Date and Time	Totalizer Reading (gal)	Cumulative Total Flow (gal)	Average Flow for Period (gpm)	Average Flow for Period (gpd)	Total VOC Conc in Well (ug/l)	Cumulative Pounds VOCs Removed	Efficiency - Removal Rate Pounds removed/ 100K gal	Efficiency - Removal Rate - Pounds/ year @ 20,000 gpd
PW-1 Operation								
01/01/01 12:00								
04/28/02 14:00		9,641,700	13.9	20,000	**809**	65	0.7	49
PW-3 Operation								
12/14/02 15:56	3,470,840	5,945,840	14.8	21,326	4,170	240	3.5	254
12/04/03 11:00	10,897,332	13,372,332	14.0	20,138	**3,351**	472	2.8	204
12/21/04 08:30	18,837,960	21,312,960	14.0	20,171	1,619	627	1.4	99
11/07/05 16:03	25,622,360	28,097,360	15.3	21,978	1,602	727	1.3	98
12/18/06 08:00	3,147,400	36,874,830	30.1	43,276	2,000	846	1.7	122
12/10/07 10:04	10,148,650	43,876,080	12.2	17,556	**1,618**	965	1.4	99
12/11/08 10:27	6,734,020	51,983,032	14.5	20,828	**869**	1,050	0.7	53
11/30/09 07:45	4,145,450	59,125,462	14.1	20,356	981	1,110	0.8	60
12/23/10 15:01	1,820,650	67,867,920	17.4	25,049	659	1,171	0.5	40
12/15/11 09:35	4,307,990	76,695,207	17.4	25,125	**725**	1,221	0.6	44
12/13/12 08:28	2,264,504	84,044,677	14.1	20,321	693	1,261	0.6	42
12/19/13 09:42	9,025,402	90,805,575	9.8	14,128	803	1,306	0.7	49
12/22/15 09:20	23,608,432	105,388,605	13.0	18,650	753	1,396	0.6	46
12/06/16 07:30	30,673,869	112,454,042	13.9	20,014	**730**	1,444	0.6	44
12/07/17 10:30	38,320,799	120,100,972	13.9	19,988	828	1,499	0.7	50
12/11/18 13:36	45,770,469	127,550,642	15.8	22,799	**713**	1,548	0.6	43
12/16/19 12:30	1,685,802	135,721,326	13.9	19,983	**744**	1,596	0.6	47
01/10/20 10:45	2,215,113	136,250,637	14.7	21,234	865	1,600	0.6	47
02/04/20 14:30	2,715,840	136,751,364	13.8	19,905	865	1,603	0.6	47
03/04/20 13:15	3,294,190	137,329,714	13.9	19,979	865	1,608	0.6	47
04/08/20 14:25	3,991,622	138,027,146	13.8	19,899	865	1,613	0.6	47
05/06/20 12:27	4,467,186	138,502,710	11.8	17,034	865	1,616	0.6	47
06/04/20 10:30	4,627,980	138,663,504	3.9	5,560	**986**	1,617	0.6	47
07/01/20 10:00	5,547,240	139,582,764	23.7	34,073	986	1,625	0.6	47
08/06/20 11:30	6,710,090	140,745,614	22.4	32,245	986	1,635	0.7	48
09/11/20 11:50	7,640,610	141,676,134	17.9	25,838	986	1,642	0.7	48
10/01/20 11:20	8,056,604	142,092,128	14.5	20,821	986	1,646	0.7	49
11/02/20 12:50	8,724,439	142,759,963	14.5	20,829	986	1,651	0.7	49
12/04/20 12:30	9,148,687	143,184,211	9.2	13,264	986	1,655	0.7	49
01/08/21 13:00	9,819,740	143,855,264	14.1	20,304	986	1,660	0.7	50

Key Dates

3/18/10 - Pump pulled and cleaned; new Totalizer/Flow Meter installed.
3/18/10 cont. - End reading = 6,208,500 gal; new meter start at 0 gal.
5/20/10 - Replaced liquid (non-motor) end of the pump (Goulds 18GS07).
9/9/10 - Penn Color reported the pump stopped working in the morning.
9/15/10 - Installed new pump (Goulds 18GS10422C, 1hp). Replaced pump control box with 15A breaker and enclosure (previous control box not rated for 1hp motor).
10/19/10 - Flow meter problem observed.
10/21/10 - New totalizer/flow meter installed. End reading = 4,858,758; New meter start at 0 gal.
4/8/11 - Due to site transformer problem disrupting electric power supply to pump, pump did not operate for approx. 1 day.
5/17/11 - PW-3 sampled during Remedial Design groundwater monitoring event. Value listed in table on 5/16/11 date.
6/22/11 - New totalizer/flow meter installed. End reading = 6,339,947; New meter start at 0 gal.
6/19/12 - New flow meter and automated system installed (RA implementation). End reading = 8,158,592 gal; New meter start at 0 gal.
8/30/12 - Data indicate pump did not operate 7/18/12 17:35 through 7/23/12 08:50, or 7/26/12 19:20 through 7/27/12 11:05. Alerts programming issues still being investigated.
8/30/12 - Flow meter total reset to 0 gal. End reading prior to reset = 1,234,364 gal.
11/8/12 - The October reading was delayed due to Hurricane Sandy.
10/7/13 - The pump was cleaned to try to increase the flow rate.
12/29/13 - The pump stopped working.
1/8/14 - Removed old pump and riser pipe. Riser pipe restricted due to buildup. Identified the need for 3-phase motor.
1/10/14 - Installed new pump (Goulds 18GS10422C, 1hp, with 3-phase 230V motor CentriPro M10432 100C313) and new 1" 160 psi black poly riser pipe.
12/26/14 - 12/30/14 - Pump shut down due to full bag filter on Penn E&R treatment system.
2/27/15 - The pump had been shut down for a period of time due to full bag filter on Penn E&R treatment system.
3/10/15 - Replaced pump motor (Goulds 18GS10, serial # A1549302) and riser pipe. Pump set at 100' bgs.
3/29/16 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
3/28/17 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
1/9/18 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
11/8/18 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
6/26/19 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
10/2/19 - Replaced PW-3 flowmeter.
6/3/20 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.

Total VOC Concentration Basis

Values in **bold** are actual sample results.
Values for dates between samples are the average of the two samples.
Values after the most recent sample date are roll-forward values and will be updated once the next sample result is obtained.

Notes: Results from 6/1/05 through 12/15/11 include Freon 113 (typically <10 ug/l) and TCFM (typically <20 ug/l) which were not previously included in total VOCs.
For 2002 - 2018, spreadsheet rows compressed (hidden) to show only last data for the year in order to save space on table, but all data are preserved.

Table 4
Performance Data for MW-2 Operation
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania
Updated 01 July 2020

Date and Time	Pump Cycle Count	Cumulative Total Flow (gal) - 0.07 gal/cycle	Average Flow for Period (gpm)	Average Flow for Period (gpd)	Total VOC Conc in Well (ug/l)	Cumulative Pounds VOCs Removed	Efficiency - Pounds removed/ 100K gal	Removal Rate - Pounds/ year @ 400 gpd
MW-2 Operation								
12/21/04 08:30	1,600,000	112,000	0.403	581	19,528	17.5	16.3	24
11/07/05 16:03	3,412,970	238,908	0.513	739	15,150	40.2	12.6	18
12/18/06 08:00	6,997,105	489,797	0.069	99	14,205	68.8	11.9	17
12/10/07 10:14	6,997,131	489,799	0.000	0	14,205	68.8	11.9	
12/11/08 10:24	9,324,448	652,711	0.612	882	**10,120**	93.9	8.4	12
11/30/09 07:42	11,333,363	793,335	0.241	347	16,266	106.4	13.6	20
12/23/10 15:01	13,040,011	912,801	0.107	154	9,531	120.6	8.0	12
12/15/11 09:35	14,454,676	1,011,827	0.537	773	**11,822**	129.1	9.9	14
12/13/12 08:28	17,751,367	1,242,596	0.481	693	10,889	145.3	9.1	13
12/19/13 09:42	21,099,680	1,476,978	0.425	612	15,413	173.5	12.9	19
12/30/14 09:38	23,758,563	1,663,099	0.381	549	10,822	195.2	9.0	13
12/22/15 09:20	969,132	1,730,943	0.175	251	4,392	199.4	3.7	5
12/06/16 07:30	2,928,310	1,868,085	0.232	334	**2,327**	203.4	1.9	3
12/07/17 10:30	5,265,210	2,031,668	0.309	445	2,655	209.0	2.2	3
12/11/18 13:36	7,963,197	2,220,527	0.424	611	**1,867**	212.0	1.6	2
12/16/19 12:30	1,764,202	2,376,714	0.161	232	872	213.3	0.7	1
01/10/20 10:45	1,764,204	2,376,714	0.000	0	872	213.3	0.7	1
02/04/20 14:30	1,860,655	2,383,466	0.186	268	6,426	213.7	5.4	8
03/04/20 13:15	2,074,464	2,398,433	0.359	517	6,426	214.5	5.4	8
04/08/20 14:25	2,156,752	2,404,193	0.114	164	6,426	214.8	5.4	8
05/06/20 12:27	2,597,568	2,435,050	0.768	1,105	6,426	216.4	5.4	8
06/04/20 10:30	2,698,645	2,442,125	0.170	245	**11,980**	217.2	10.0	15
07/01/20 10:00	2,896,865	2,456,001	0.357	514	11,980	218.5	10.0	15
08/06/20 11:30	3,166,851	2,474,900	0.364	524	11,980	220.4	10.0	15
09/11/20 11:50	3,382,528	2,489,997	0.291	419	11,980	221.9	10.0	15
10/01/20 11:20	3,932,777	2,528,514	1.339	1,928	11,980	225.8	10.0	15
11/20/20 12:50	4,692,560	2,581,699	0.738	1,062	11,980	231.1	10.0	15
12/04/20 12:30	4,830,553	2,591,359	0.480	691	11,980	232.1	10.0	15
01/08/21 13:00	4,839,521	2,591,987	0.012	18	11,980	232.1	10.0	15

Key Dates

1/27/10 - Pump was shut down by Penn Color for previous 36 hours, due to rain flooding event.
3/18/10 - Pump pulled and cleaned; replaced pressure gage.
9/15/10 - Pump pulled and cleaned.
10/15/10 - Pump reading indicated pump no functioning.
10/21/10 - Pump inspected and determined to be unfixable.
11/8/10 - Replacement pump installed (QED AP2B Short).
5/17/11 - MW-2 sampled during Remedial Design groundwater monitoring event. Value listed in table on 5/16/11 date.
6/22/11 - Pump operating but reading not obtained; so used average of adjacent table values.
9/27/11 - Pump operating but reading not obtained; so used average of adjacent table values.
6/19/12 - Pump operating but reading not obtained; so used average of adjacent table values.
11/8/12 - The October reading was delayed due to Hurricane Sandy.
4/7/15 - Replaced cycle counter. It was discovered to have been malfunctioning since sometime in January, though the pump had been operating correctly.
2/4/19 - MW-2S was discovered to be not pumping during February O&M visit. Issues with air supply and regulator were resolved. Pumping resumed.
3/25/19 - Replaced cycle counter. Pre-replacement reading: 8,430,235, Post replacement reading: 0,000,014
12/4/2019 - Clogged moisture separator prevented proper operation of the MW-2S pump.Upon cleaning the moisture separator, normal operation of the pump resumed.
1/21/20 - Corrected formula for cumulative total flow.

Values in **bold** are actual sample results.
Values for dates between samples are the average of the two samples.
Values after the most recent sample date are roll-forward values and will be updated once the next sample result is obtained.

Notes: Results from 6/1/05 on include Freon 113 (7 ug/l) and TCFM (19 ug/l) which were not previously included in total VOCs.
For 2002 - 2018 spreadsheet rows compressed (hidden) to show only last data for the year in order to save space on table, but all data are preserved.

Table 5
Performance Data for All Recovery Wells
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania
Updated 29 January 2020

Pumps Operated	Date and Time	Cumulative Pounds VOCs Removed	% of VOCs Removed	Estimated Pounds VOCs Remaining	Total Flow	Average Flow for Period (gpd)
PW-1	01/01/01 12:00			2,576		
	04/28/02 14:00	65	2.6%	2,511		20,000
PW-3	04/29/02 14:00			2,511		
	12/14/02 15:56	240	9.6%	2,271		21,326
	12/04/03 11:00	472	18.8%	2,039		20,138
PW-3 & MW-2	08/16/04 12:10	593	23.6%	1,918	18,772,525	22,605
	12/21/04 08:30	644	25.7%	1,867	21,424,960	20,751
	11/07/05 16:03	767	30.5%	1,744	28,336,268	22,717
	12/18/06 08:00	915	36.4%	1,596	37,364,627	43,375
	12/10/07 10:04	1,034	41.2%	1,477	44,365,879	17,556
	12/11/08 10:27	1,144	45.6%	1,367	52,635,743	21,710
	11/30/09 07:45	1,216	48.4%	1,295	59,918,797	20,703
	12/23/10 15:01	1,292	51.5%	1,219	68,780,721	23,429
	12/15/11 09:35	1,350	53.8%	1,161	77,707,034	25,898
	12/13/12 08:28	1,407	56.0%	1,104	85,287,273	21,014
	12/19/13 09:42	1,479	58.9%	1,032	92,282,553	14,739
	12/30/14 09:38	1,550	61.7%	961	100,119,626	15,367
	12/22/15 09:20	1,596	63.6%	915	107,119,548	18,901
	12/06/16 07:30	1,647	65.6%	864	114,322,127	20,348
	12/07/17 10:30	1,708	68.0%	803	122,132,640	20,432
	12/11/18 13:36	1,760	70.1%	751	129,771,169	23,410
	12/16/19 12:30	1,809	72.1%	702	138,098,040	20,215
	01/10/20 10:45	1,813	72.2%	698	138,627,351	21,234
	02/04/20 14:30	1,817	72.4%	694	139,134,830	20,173
	03/04/20 13:15	1,822	72.6%	689	139,728,147	20,496
	04/08/20 14:25	1,827	72.8%	683	140,431,339	20,063
	05/06/20 12:27	1,833	73.0%	678	140,937,760	18,140
	06/04/20 10:30	1,835	73.1%	676	141,105,629	5,805
	07/01/20 10:00	1,844	73.4%	667	142,038,765	34,587
	08/06/20 11:30	1,855	73.9%	656	143,220,514	32,769
	09/11/20 11:50	1,864	74.2%	647	144,166,131	26,257
	10/01/20 11:20	1,871	74.5%	640	144,620,642	22,749
	11/02/20 12:50	1,882	75.0%	629	145,341,662	21,892
	12/04/20 12:30	1,887	75.1%	624	145,775,570	13,954
	01/08/21 13:00	1,892	75.4%	619	146,447,251	20,322
				Average (~last 6 months)		23,066

Notes: For 2002 - 2019 spreadsheet rows compressed to show only last data for the year in order to save space on table, but all data are preserved.

8/30/12 - PW-3 flow meter reading/programming issue.

Table 6a
Water Level Data: 11 May 2020
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

Date	Well	Top of Casing Elevation (ft amsl)	Depth to Water (ft below top of inner casing)	Water Level Elevation (ft amsl)	Notes
5/11/2020	MW-1	354.34	12.21	342.13	
5/11/2020	MW-1I	354.3	12.03	342.27	
5/11/2020	MW-1D	354.22	14.06	340.16	
5/11/2020	MW-2	355.33	16.96	338.37	
5/11/2020	MW-2I	353.13	14.90	338.23	
5/11/2020	MW-2D	353.38	15.23	338.15	
5/11/2020	MW-3A	348.72	11.29	337.43	
5/11/2020	MW-3B	353.18	15.24	337.94	
5/11/2020	MW-3C	348.59	10.87	337.72	
5/11/2020	MW-3D	348.88	10.78	338.1	
5/11/2020	MW-4S	354.5	11.32	343.18	
5/11/2020	MW-4D	353.51	10.39	343.12	
5/11/2020	MW-5S	346.68	9.26	337.42	
5/11/2020	MW-5I	348.84	11.00	337.84	
5/11/2020	MW-5D	349.12	11.02	338.1	
5/11/2020	MW-5XD	348.73	11.02	337.71	
5/11/2020	MW-6	347.23	8.65	338.58	
5/11/2020	MW-7	350.28	9.43	340.85	
5/11/2020	MW-8S	362.72	8.21	354.51	
5/11/2020	MW-8D	363.08	7.92	355.16	
5/11/2020	MW-9S	347.64	3.32	344.32	
5/11/2020	MW-9I	348.63	4.43	344.2	
5/11/2020	MW-9D	347.99	3.71	344.28	
5/11/2020	MW-10S	354.29	11.81	342.48	
5/11/2020	MW-10I	355.13	12.45	342.68	
5/11/2020	MW-10D	354.66	12.78	341.88	
5/11/2020	MW-11A	344.14	3.77	340.37	
5/11/2020	MW-11B	344.2	3.92	340.28	
5/11/2020	MW-11C	343.89	3.72	340.17	
5/11/2020	MW-12A	355.31	9.93	345.38	
5/11/2020	MW-12B	354.91	8.41	346.5	
5/11/2020	MW-13S	341.78	7.22	334.56	
5/11/2020	MW-13I	340.89	5.98	334.91	
5/11/2020	MW-13D	342.2	5.19	337.01	
5/11/2020	MW-14S	351.91	7.68	344.23	
5/11/2020	MW-14I	351.79	7.78	344.01	
5/11/2020	MW-14D	351.51	7.86	343.65	
5/11/2020	PCGW-2	355.91	18.13	337.78	
5/11/2020	PCGW-3	353.97	7.63	346.34	
5/11/2020	PW-3	353.47	16.18	337.29	
5/11/2020	PT-3	346.82	7.44	339.38	
5/11/2020	PT-6	354.53	5.72	348.81	
5/11/2020	PT-7	353.54	4.58	348.96	
5/11/2020	SMP-0	342.29	--	--	Not measured
5/11/2020	SMP-1	338.47	0.04	338.43	Reading relative to stream monitoring point
5/11/2020	SMP-2	334.53	0.11	334.42	Reading relative to stream monitoring point
5/11/2020	SMP-3	335.12	0.00	333.32	Reading relative to stream monitoring point

Table 6b
Water Level Data: 23 November 2020
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

Date	Well	Top of Casing Elevation (ft amsl)	Depth to Water (ft below top of inner casing)	Water Level Elevation (ft amsl)	Notes
11/23/2020	MW-1	354.34	11.87	342.47	
11/23/2020	MW-1I	354.3	12.58	341.72	
11/23/2020	MW-1D	354.22	13.98	340.24	
11/23/2020	MW-2	355.33	--	--	Not Measured
11/23/2020	MW-2I	354.25	--	--	No Access; Buried under grass
11/23/2020	MW-2D	354.31	--	--	No Access; Buried under grass
11/23/2020	MW-3A	348.72	8.13	340.59	
11/23/2020	MW-3B	353.18	12.60	340.58	
11/23/2020	MW-3C	348.59	8.90	339.69	
11/23/2020	MW-3D	348.88	9.59	339.29	
11/23/2020	MW-4S	354.5	11.78	342.72	
11/23/2020	MW-4D	353.51	10.87	342.64	
11/23/2020	MW-5S	346.68	8.65	338.03	
11/23/2020	MW-5I	348.84	10.08	338.76	
11/23/2020	MW-5D	349.12	9.98	339.14	
11/23/2020	MW-5XD	348.73	10.03	338.70	
11/23/2020	MW-6	347.23	4.62	342.61	
11/23/2020	MW-7	350.28	9.34	340.94	
11/23/2020	MW-8S	362.72	8.34	354.38	
11/23/2020	MW-8D	363.08	8.40	354.68	
11/23/2020	MW-9S	347.64	5.32	342.32	
11/23/2020	MW-9I	348.63	6.11	342.52	
11/23/2020	MW-9D	347.99	5.43	342.56	
11/23/2020	MW-10S	354.29	11.91	342.38	
11/23/2020	MW-10I	355.13	13.83	341.30	
11/23/2020	MW-10D	354.66	13.93	340.73	
11/23/2020	MW-11A	344.14	3.96	340.18	
11/23/2020	MW-11B	344.2	4.10	340.10	
11/23/2020	MW-11C	343.89	4.27	339.62	
11/23/2020	MW-12A	355.31	10.08	345.23	
11/23/2020	MW-12B	354.91	8.72	346.19	
11/23/2020	MW-13S	341.78	6.79	334.99	
11/23/2020	MW-13I	340.89	5.51	335.38	
11/23/2020	MW-13D	342.2	4.82	337.38	
11/23/2020	MW-14S	351.91	9.32	342.59	
11/23/2020	MW-14I	351.79	9.42	342.37	
11/23/2020	MW-14D	351.51	9.48	342.03	
11/23/2020	PCGW-2	355.91	17.59	338.32	
11/23/2020	PCGW-3	353.97	--	--	No Access; Could not be located
11/23/2020	PW-3	353.47	12.59	340.88	
11/23/2020	PT-3	346.82	7.03	339.79	
11/23/2020	PT-6	354.53	6.12	348.41	
11/23/2020	PT-7	353.54	5.38	348.16	
12/3/2020	SMP-0	342.29	7.13	335.17	Reading relative to stream monitoring point
12/3/2020	SMP-1	338.47	1.13	337.34	Reading relative to stream monitoring point
12/3/2020	SMP-2	334.53	-1.50	336.03	Reading relative to stream monitoring point
12/3/2020	SMP-3	335.12	20.75	314.37	Reading relative to stream monitoring point

Table 7 - System Uptime
Sub-Slab Depressurization System
North Penn Area 2 Superfund Site

Date and Time	Blower Hour Meter	% Uptime	Notes
2/24/2020 15:30	1,525	29%	System perdiocally down due to freezing conditions
3/4/2020 15:18	1,705	83%	
4/8/2020 11:30	2,670	100%	
5/6/2020 12:30	3,312	95%	
6/4/2020 10:00	4,034	100%	
7/1/2020 17:20	4,686	99%	
8/6/2020 10:00	5,543	100%	
9/11/2020 11:00	6,404	100%	
10/1/2020 11:00	6,886	100%	
11/2/2020 10:30	7,652	100%	
12/4/2020 11:15	8,131	62%	System down due to power loss and needed repairs
1/8/2021 11:15	8,965	99%	

Notes:
Regular system operation began on 9 December 2019.

Table 8 - Estimated VOC Mass Removal
Sub-Slab Depressurization System
North Penn Area 2 Superfund Site

Vapor Extraction Total Runtime Since Start-Up =	8,943	hours
Vapor Extraction Total Runtime Since Start-Up =	373	days
Total Estimated Mass Removed Since Start-Up =	635	lbs.
Average Estimated Mass Removal Rate Since Start-Up =	1.70	lbs./day

Monitoring Date	Cumulative Vapor Extraction Run Time (hours)	Operating Period Run Time (hours)	Estimated VOC Mass Removal Rate (lbs./day)	Estimated VOC Mass Removal Rate (lbs./hour)	Estimated VOC Mass Removed during Operating Period (lbs.)	Estimated Cumulative VOC Mass Removed (lbs.)
2/24/2020	1,525	138	0.8	0.031	16	232
3/4/2020	1,705	180	0.3	0.013	4	236
4/8/2020	2,670	943	3.1	0.128	66	302
5/6/2020	3,312	642	0.5	0.020	47	350
6/4/2020	4,034	722	0.5	0.021	14	364
7/1/2020	4,686	652	1.2	0.048	22	387
8/6/2020	5,543	857	0.8	0.031	34	421
9/11/2020	6,404	861	1.0	0.043	32	452
10/1/2020	6,886	482	1.8	0.074	28	481
11/2/2020	7,652	766	4.5	0.190	101	582
12/4/2020	8,131	479	0.2	0.009	47	629
1/8/2021	8,965	834	0.1	0.005	6	635

Table 9 - Vapor-Phase Carbon PID Readings
Sub-Slab Depressurization System
North Penn Area 2 Superfund Site

Date/Time	Air Flowrate (acfm)	Pre-Carbon (ppm)	Mid-Carbon (ppm)	Post-Carbon (ppm)
11/19/2019 8:00	1,037	37.8	0.2	0.1
11/19/2019 13:00	1,133	21.6	0.1	0
11/26/2019 9:00	1,133	15.1	0.1	0
12/16/2019 12:30	1,074	5.1	1	0
2/4/2020 15:30	1,388	9.4	8.9	2.9
2/24/2020 15:45	1,145	1.7	0.8	0.5
3/4/2020 13:15	986	0.8	0.9	0.4
4/8/2020 11:30	1,014	7.9	3.6	3.2
	4/24/2020 Carbon changeout			
5/6/2020 12:30	817	1.5	0.4	0
6/4/2020 10:00	868	1.5	0.2	0
7/1/2020 17:20	836	3.7	0.7	0.3
8/6/2020 10:00	876	2.3	0.3	0.1
9/11/2020 11:00	981	2.8	0.9	0.3
10/1/2020 11:00	716	6.7	6.7	0.4
11/2/2020 10:30	1,069	10.9	3.5	no reading[1]
12/4/2020 11:15	916	0.6	1.5	0.7
	12/23/2020 Carbon changeout			
1/8/2021 11:15	979	0.3	0.3	no reading[2]

Notes:
[1]The post-carbon reading was not collected due to water in the line.
[2] The post-carbon reading was not collected due to loose sealing of the Fernco fitting.

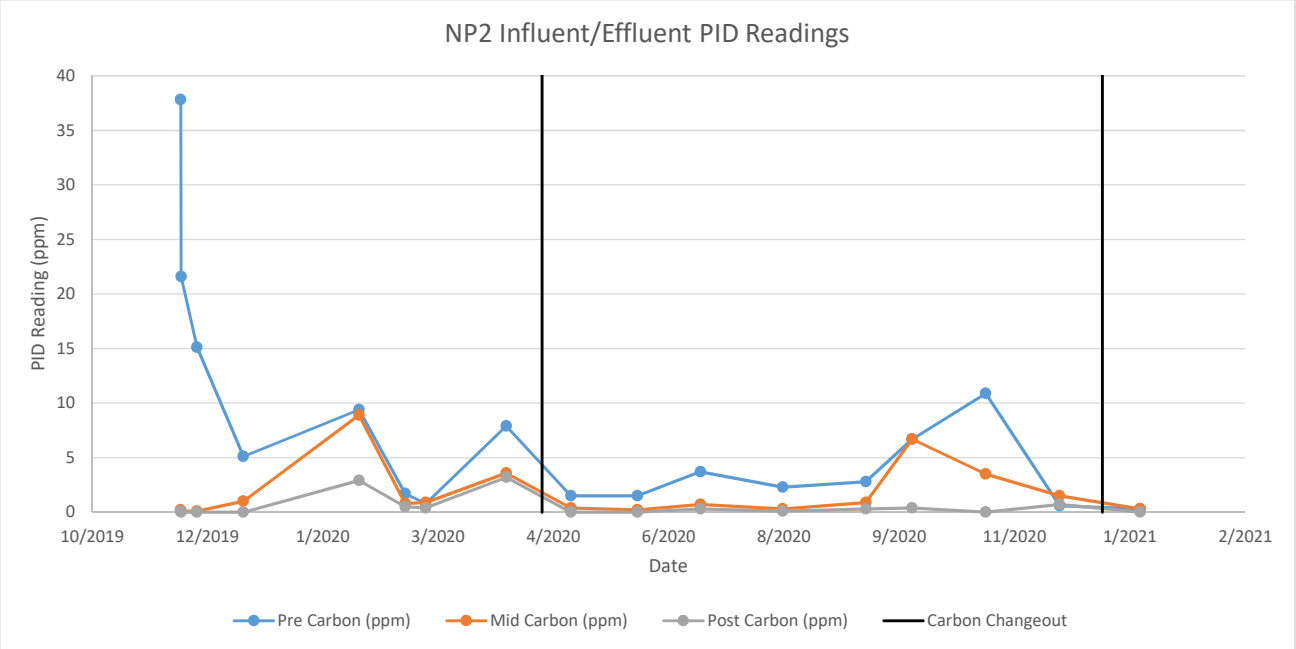


Table 10 - Induced Vacuum
Sub-Slab Depressurization System
North Penn Area 2 Superfund Site

Date/Time	Vapor Pin Reading (Pressure; inch of water column (in. w.c.)										
	VP-20	VP-40	VP-50	SS-B1-03	SS-B1-06	PT-1	PT-3	PT-4	PT-5	PT-6	SS-B1-01 (PT-8)
2/24/2020 15:45	-11.35	-16.9	-10.0	-5.0	-3.0	-0.22	-0.37	-0.46	-0.46	-0.81	-0.22
3/4/2020 13:15	-9.24	-13.1	-9.03	-4.72	NA	-0.26	-0.43	NA	-0.61	-0.84	0.12
4/8/2020 11:30	no pin	-12.28	-9.08	-4.90	NA	-0.54	-0.78	-0.86	-1.00	-1.15	-0.58
5/6/2020 12:30	no pin	-9.78	-6.05	-4.96	NA	-0.6	-0.82	-0.85	NA	-0.91	-0.70
6/4/2020 10:00	no pin	-9.41	-7.25	-4.08	-5.37	-1.55	-1.68	-1.93	-1.91	-1.93	-1.72
7/1/2020 17:20	no pin	-10.66	-12.71	-6.25	-7.18	-1.81	-2.22	-2.24	-2.24	1.99	-2.10
8/6/2020 10:00	no pin	-13.73	-10.87	-6.71	-7.72	-1.58	-2.00	-1.97	-1.96	-1.78	-1.86
9/11/2020 11:00	no pin	-10.74	-5.56	-8.76	-0.17	-2.1	-2.59	NA	-0.17	-2.15	-2.15
10/1/2020 11:00	no pin	-8.13	-5.4	3.90	-3.92	-1.04	-1.22	-1.07	-1.01	-2.33	-1.16
11/2/2020 10:30	no pin	-6.46	-3.48	-3.62	-1.56	-0.96	-1.05	-1.1	-0.78	-0.69	-1.02
12/4/2020 11:15	no pin	>-4.00	-3	-2.90	-1.60	-0.7	-0.90	-0.9	NA	NA	-0.70
1/8/2021 11:15	no pin	-3.65	-1.8	-2.45	-0.66	-0.57	-0.62	-0.6	-0.42	-0.59	-0.52

Notes:
NA = Not Accessible, typically due to Penn Color's active production operations.
Achieving a pressure differential of -0.004 in. w.c. across the slab is generally considered sufficient to prevent vapor intrusion.
4/8/2020 - VP-20 was found to be removed and location was filled in with concrete.
12/4/2020 - Magnahelic gauges were used to collect readings; not all gauges were in range of the vapor pin pressure.

Vapor Pin Locations:

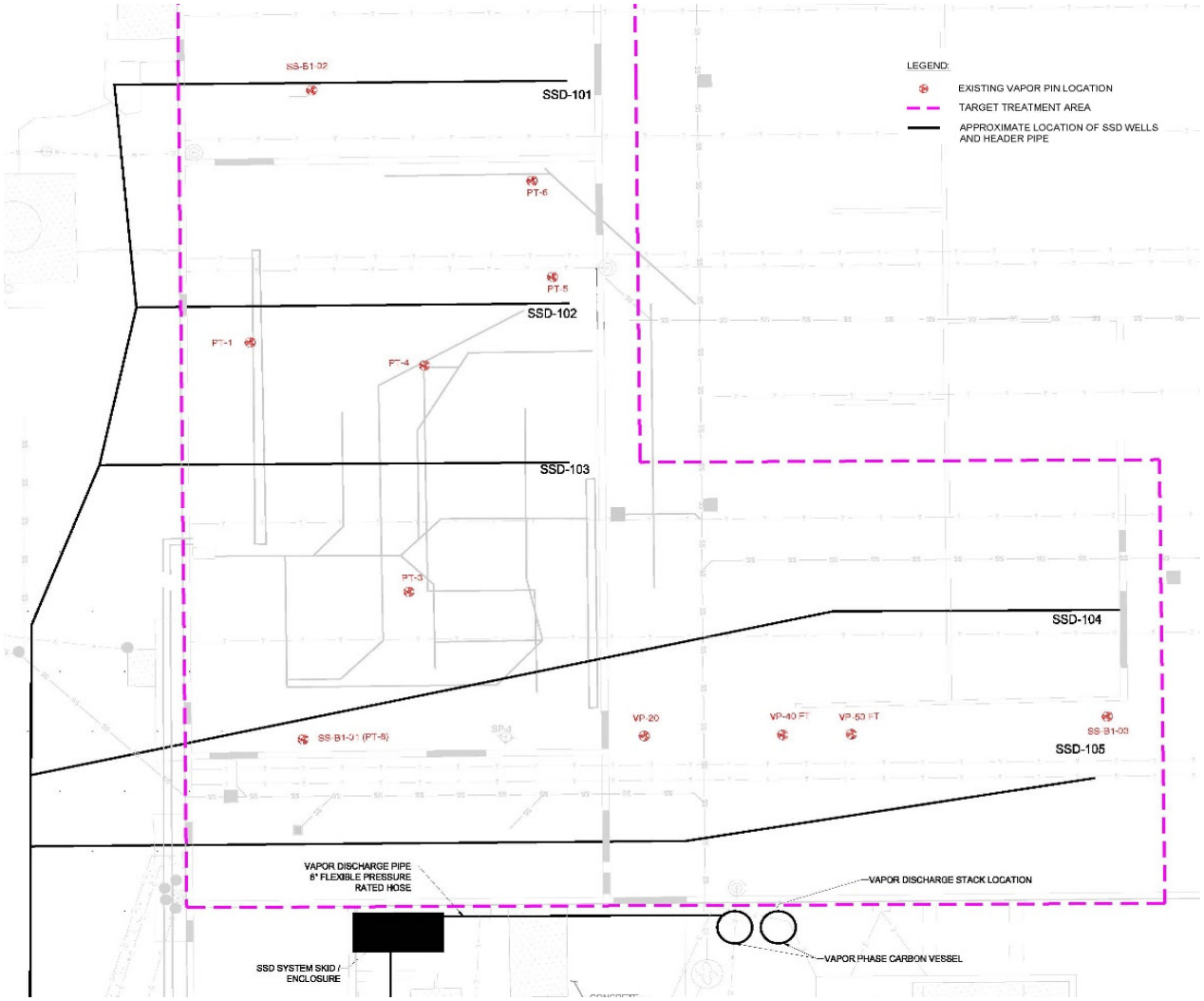
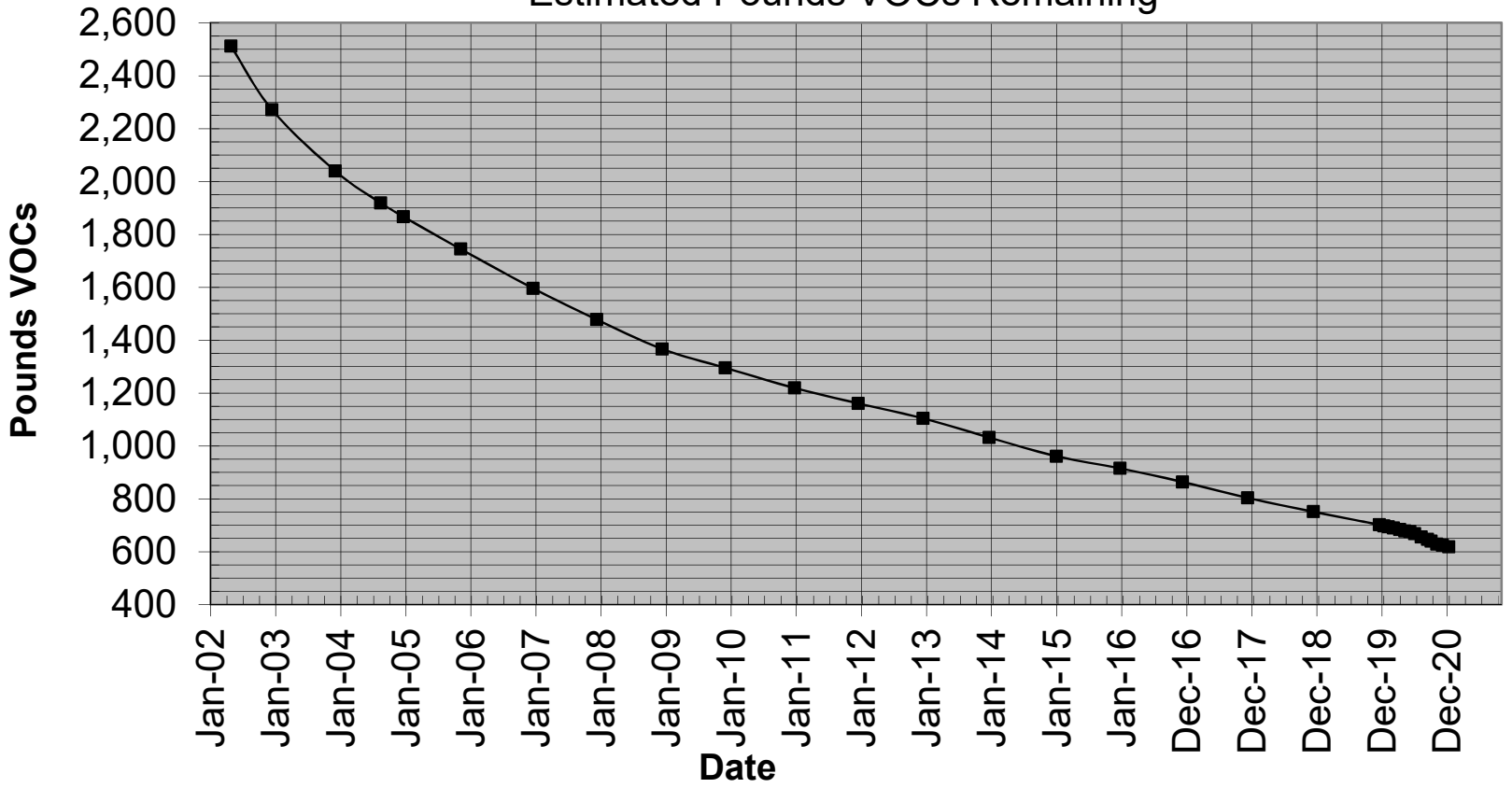
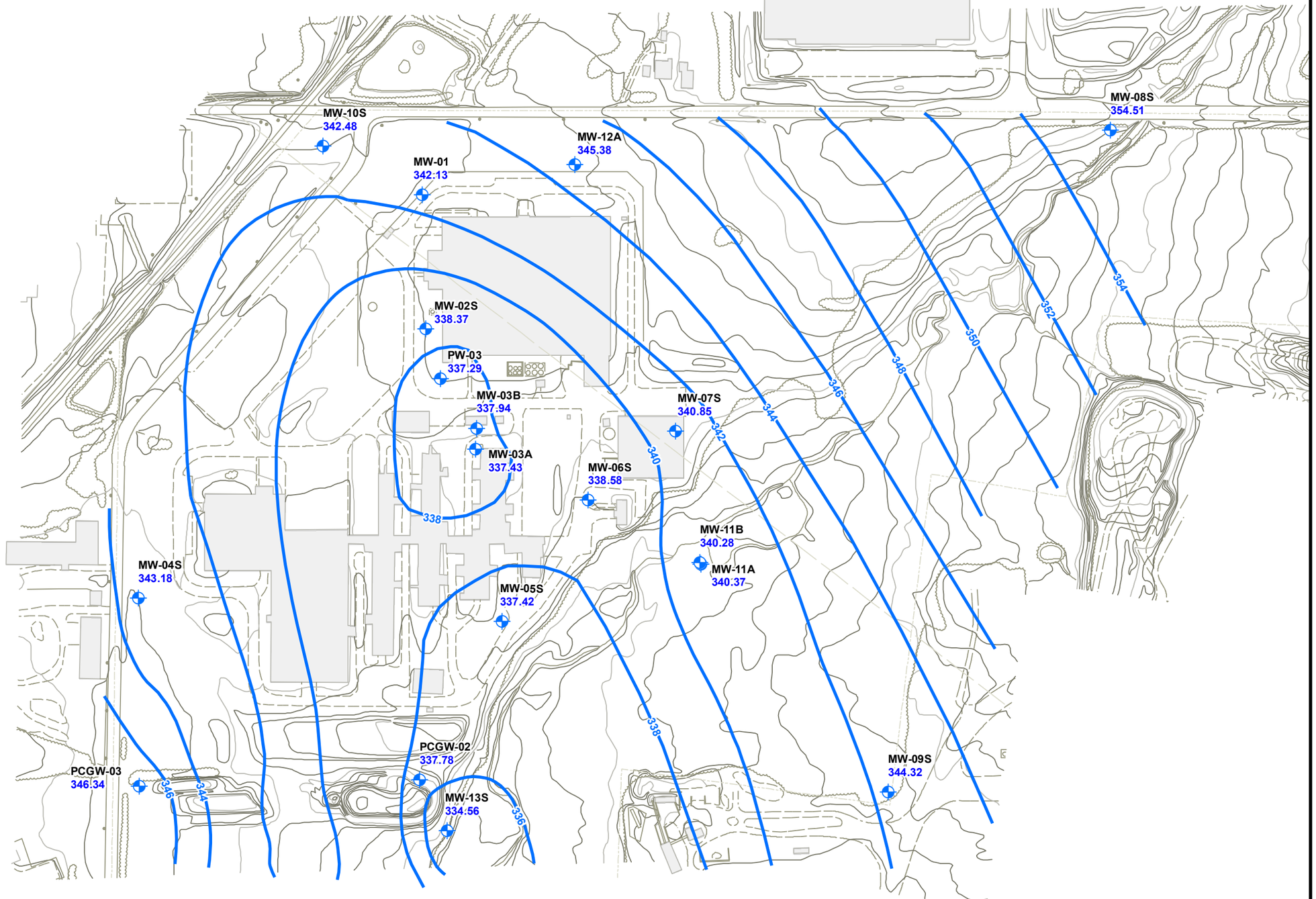
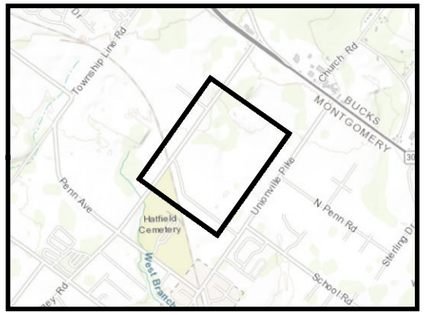


Figure A
North Penn Area 2 Superfund Site
Estimated Pounds VOCs Remaining







Legend

- Shallow Monitoring Well
- Potentiometric Surface Contour (2-foot Interval) – Dashed where inferred
- 344.06 Groundwater Elevation (ft-amsl)

NOTES:

1. Groundwater Elevations based on 05/11/2020 gauging event.
2. ft-amsl = feet below mean sea level.
3. DWG. NO. 1188, "Penn Color, Inc. Formerly Ametek, Inc." 4/17/2000, James M. Stewart, Inc. Land Surveyors Philadelphia, Pennsylvania

0 125 250 500
Feet

FIGURE 1a
Shallow Potentiometric Contour Map
May 11, 2020
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

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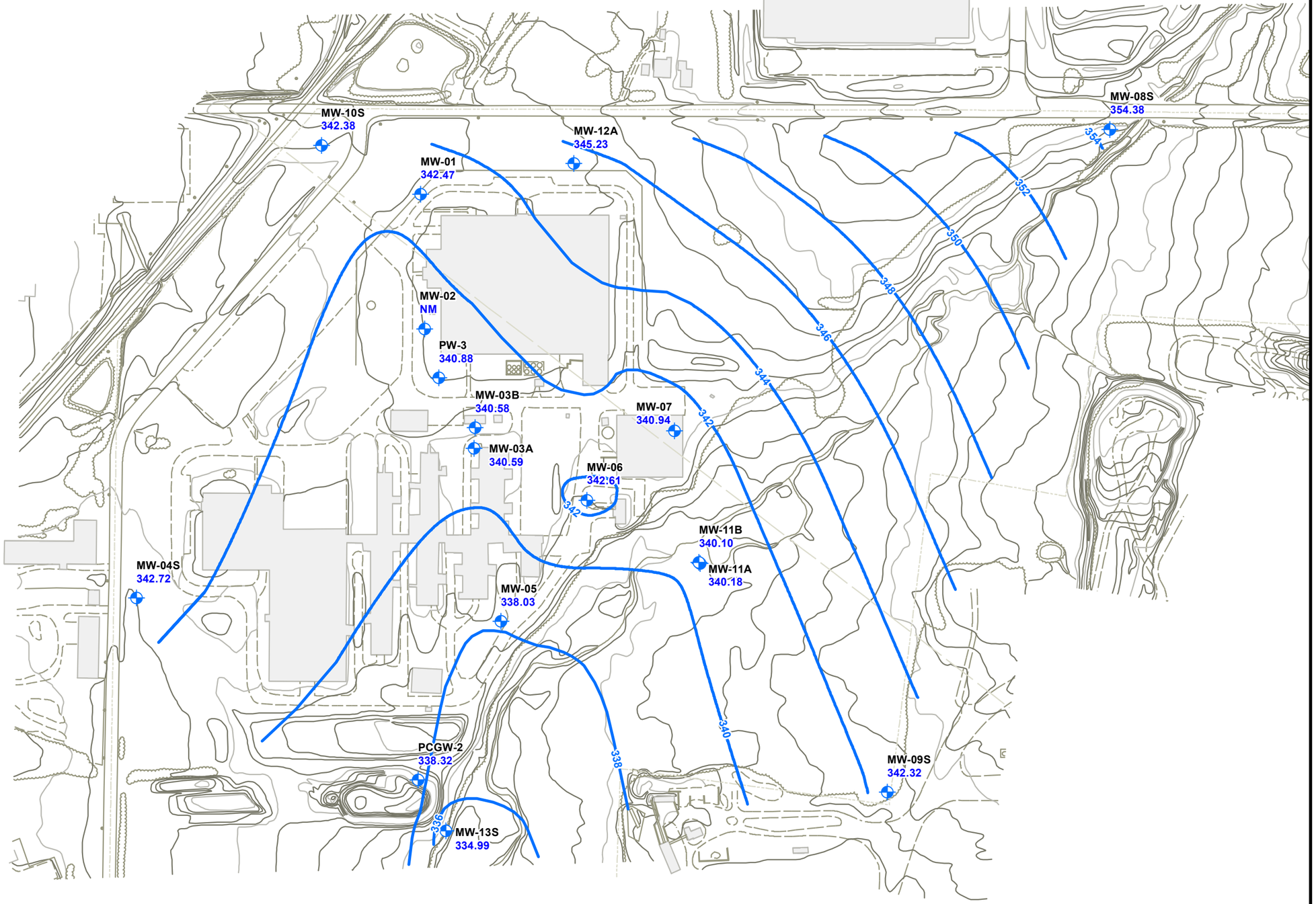
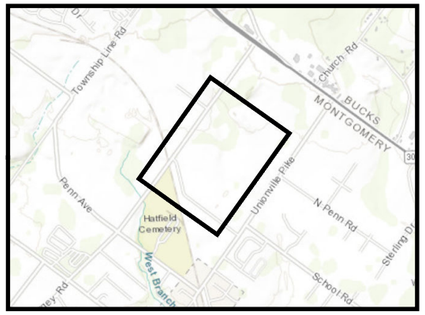




Legend

- Shallow Monitoring Well
- Potentiometric Surface Contour (2-foot Interval) – Dashed where inferred
- 344.06 Groundwater Elevation (ft-amsl)

NOTES:

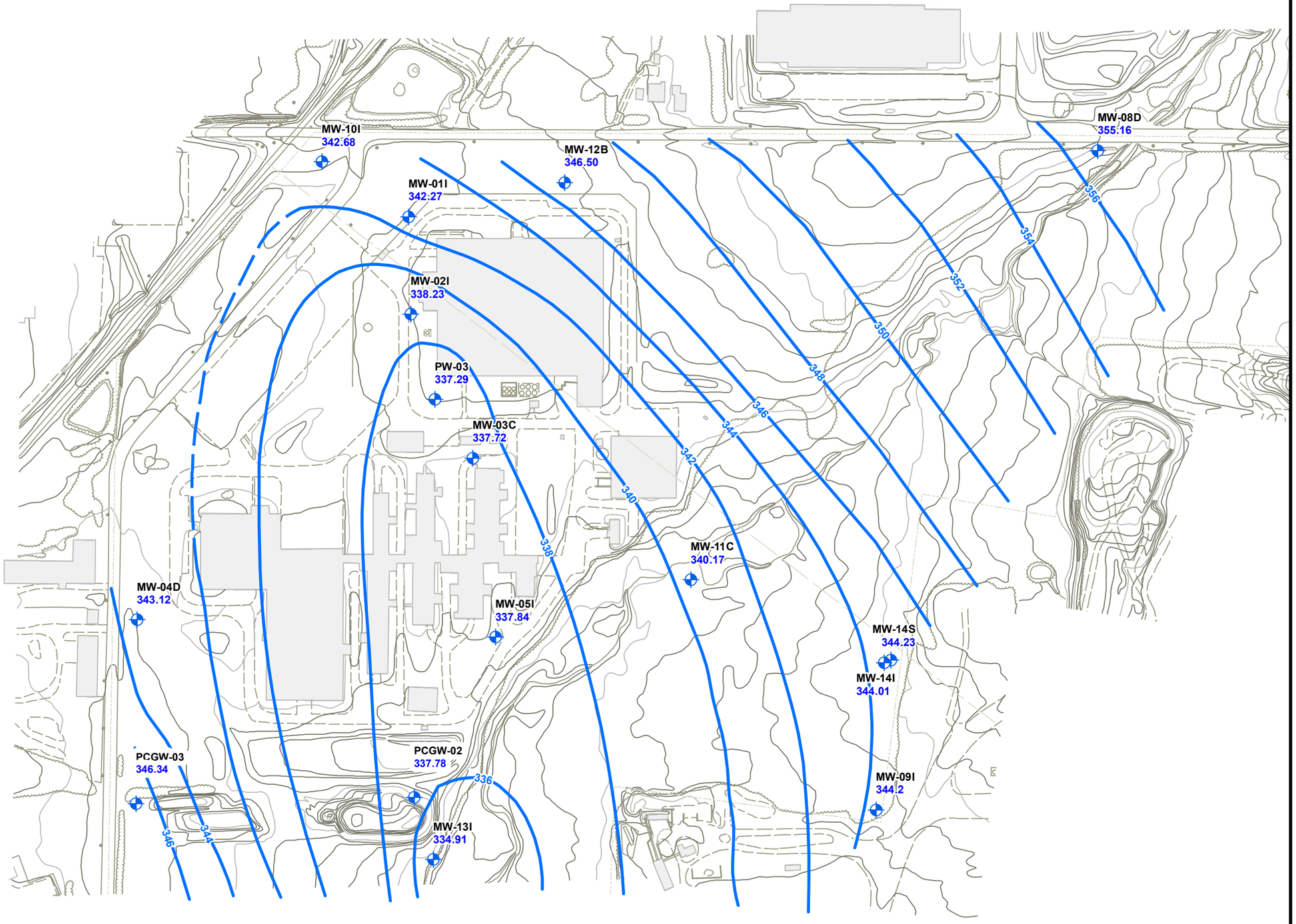
1. Groundwater Elevations based on 11/23/2020 gauging event.
2. MW-02S was not gauged in November 2020.
3. ft-amsl = feet above mean sea-level
4. DWG. NO. 1188, "Penn Color, Inc. Formerly Ametek, Inc." 4/17/2000, James M. Stewart, Inc. Land Surveyors Philadelphia, Pennsylvania

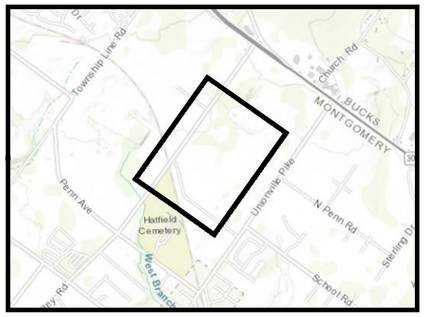
0 125 250 500
Feet

FIGURE 1b
Shallow Potentiometric Contour Map
November 23, 2020
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

ERM

J:\Projects\NorthPenn\Ametek-Area2_MXD\Groundwater Contours\Figure 1b-GroundwaterShallowContourMapNOV2020_20210113.mxd - steven.vickery - 1/20/2021





Legend

- Intermediate Monitoring Well
- Potentiometric Surface Contour (2-foot Interval) – Dashed where inferred
- 344.06 Groundwater Elevation (ft-amsl)

NOTES:

1. Groundwater Elevations based on 05/11/2020 gauging event.
2. ft-amsl = feet above mean sea level.
3. DWG. NO. 1188, "Penn Color, Inc. Formerly Ametek, Inc." 4/17/2000, James M. Stewart, Inc. Land Surveyors Philadelphia, Pennsylvania

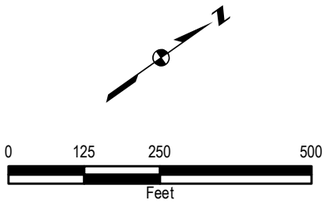


FIGURE 2a
Intermediate Potentiometric Contour Map
May 11, 2020
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

ERM

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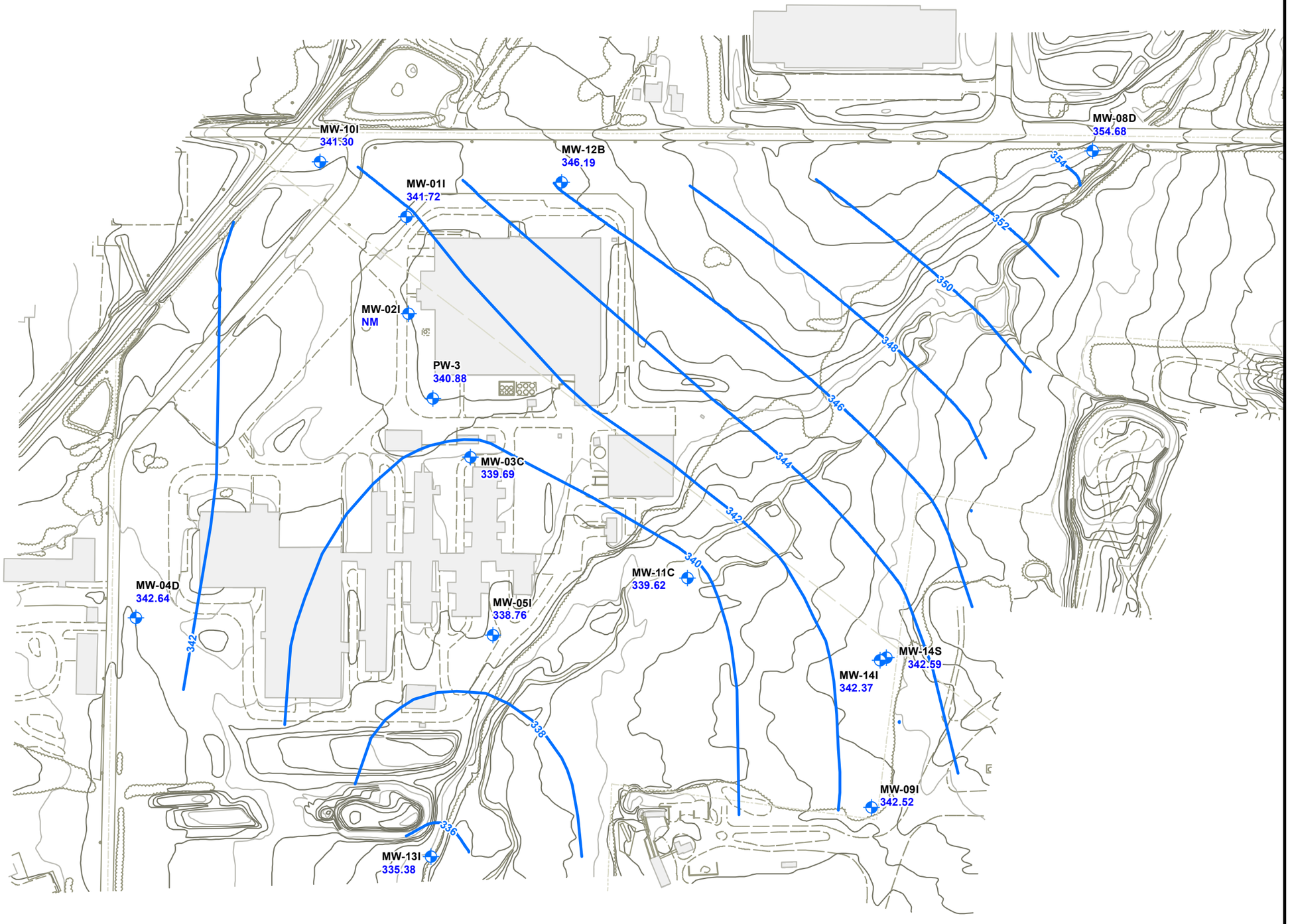

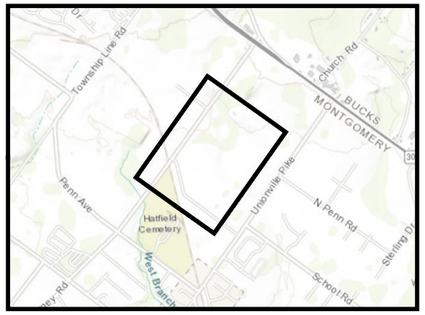

Legend

- Intermediate Monitoring Well
- Potentiometric Surface Contour (2-foot Interval) – Dashed where inferred
- 344.06 Groundwater Elevation (ft-amsl)

NOTES:

1. Groundwater Elevations based on 11/23/2020 gauging event.
2. MW-02I was not gauged in November 2020.
3. ft-amsl = feet above mean sea-level
4. DWG. NO. 1188, "Penn Color, Inc. Formerly Ametek, Inc." 4/17/2000, James M. Stewart, Inc. Land Surveyors Philadelphia, Pennsylvania

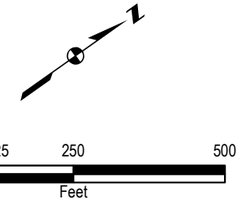

FIGURE 2b

Intermediate Potentiometric Contour Map

November 23, 2020

North Penn Area 2 Superfund Site

Hatfield Township, Pennsylvania

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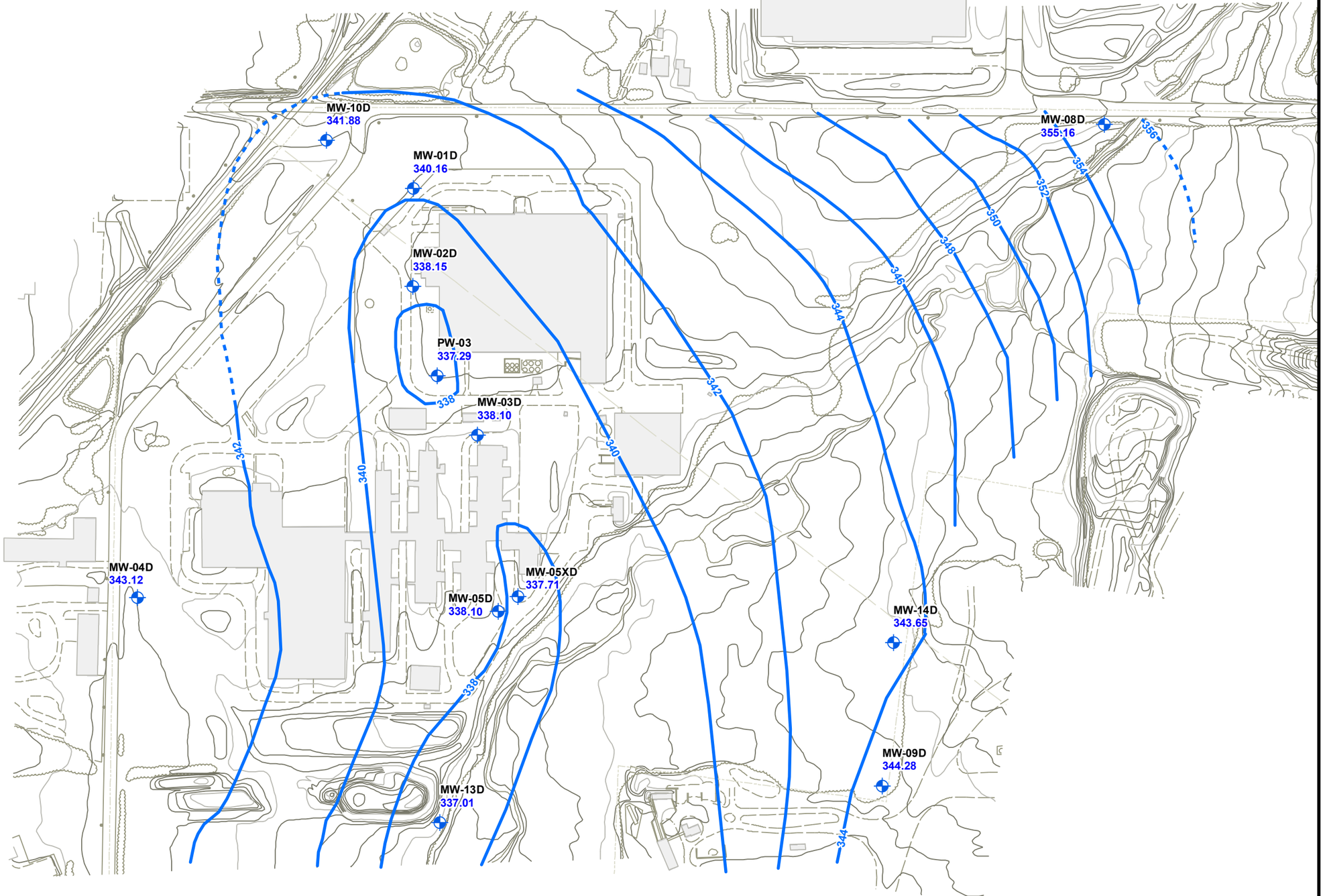

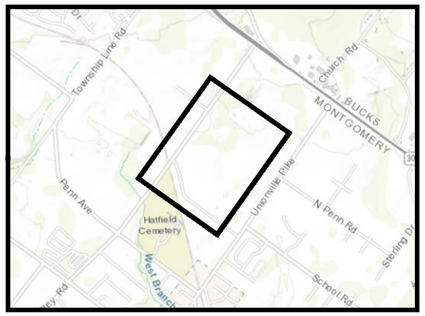

Legend

- Deep Monitoring Well
- Potentiometric Surface Contour (2-foot Interval) – Dashed where inferred
- 344.06 Groundwater Elevation (ft-amsl)

NOTES:

1. Groundwater Elevations based on 05/11/2020 gauging event.
2. ft-amsl = feet above mean sea level
3. DWG. NO. 1188, "Penn Color, Inc. Formerly Ametek, Inc." 4/17/2000, James M. Stewart, Inc. Land Surveyors Philadelphia, Pennsylvania

N

0 125 250 500

Feet

FIGURE 3a

Deep Potentiometric Contour Map

May 11, 2020

North Penn Area 2 Superfund Site

Hatfield Township, Pennsylvania

ERM

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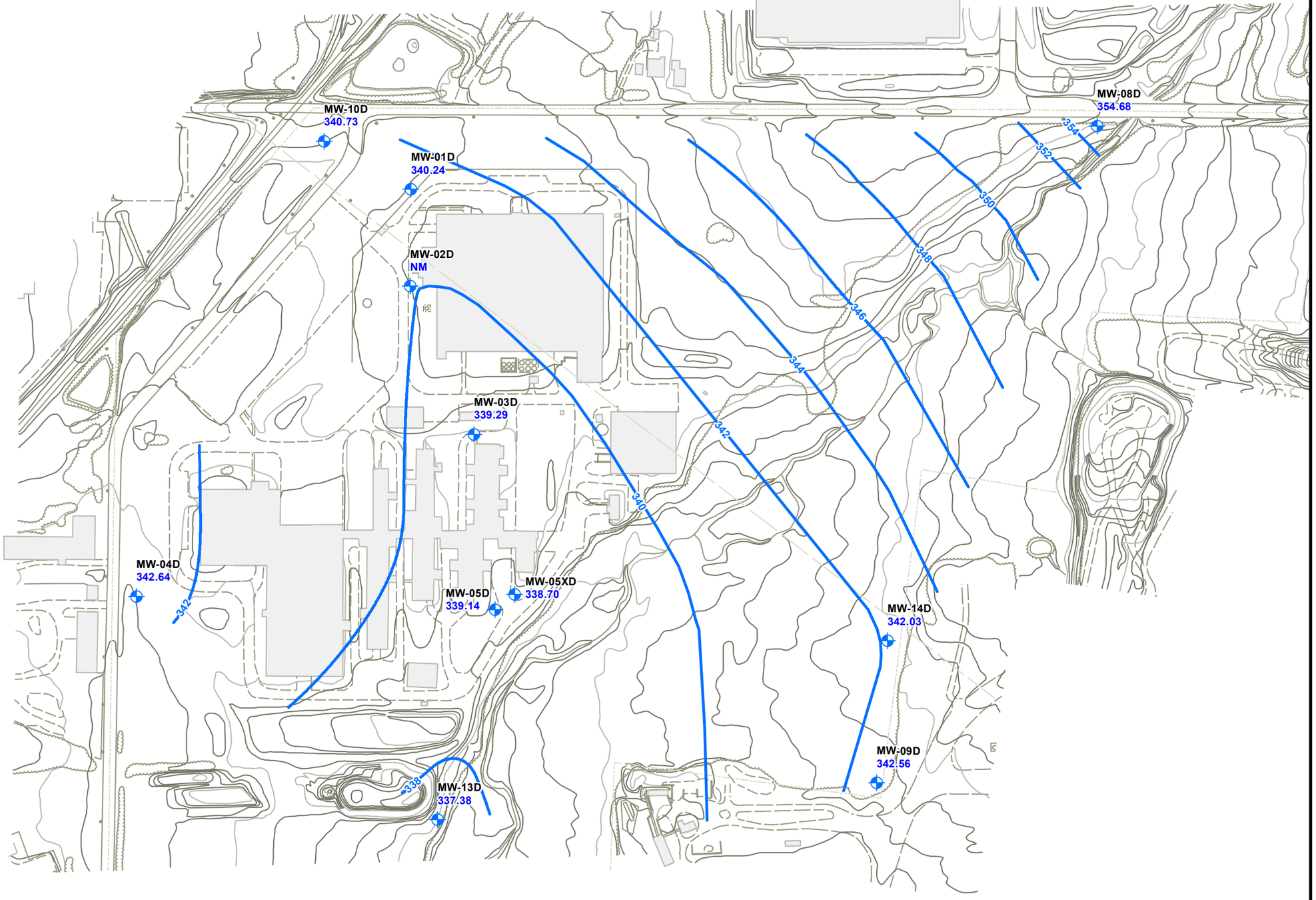

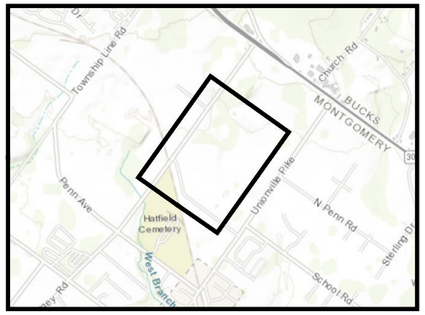

Legend

- Deep Monitoring Well
- Potentiometric Surface Contour (2-foot Interval) – Dashed where inferred
- 344.06 Groundwater Elevation (ft-amsl)

NOTES:

1. Groundwater Elevations based on 11/23/2020 gauging event.
2. MW-02D was not gauged in November 2020.
3. ft-amsl = feet above mean seal-level
4. DWG. NO. 1188, "Penn Color, Inc. Formerly Ametek, Inc." 4/17/2000, James M. Stewart, Inc. Land Surveyors Philadelphia, Pennsylvania

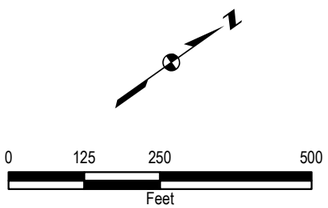

FIGURE 3b
Deep Potentiometric Contour Map
November 23, 2020
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

ERM

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